

Indicator Block and Support

This invention relates to an indicator block and a support. More particularly, this invention relates to a size indicator for a hanger. Still more particularly, this invention relates to a hanger and a size indicator mounted on the hanger.

The use of small indicator blocks that are applied to products in order to identify them is well known in many industries, particularly in the trade field, for example in the garment industry.

The small indicator blocks of the known type have the drawback of being easily removed from their attachment seat. This removal easiness means having some objects without the small indicator block and makes possible exchanges of goods easy by ill-disposed people during the handling of goods in warehouses or in stores particularly where the small indicator block is applied on coat hangers or garment bags in general with size-mark functions.

Moreover, as coat hangers are commonly used at home, if the size indicator block is easily removable, there is a risk that small children may use the block as a toy. Further, due to their typically small sizes and bright colors, these indicator blocks could be mistaken for a sweet and therefore dangerously swallowed.

It is an object of the present invention to provide a small indicator block that after having been assembled on a support prevents these negative events from occurring.

It is another object of the invention to provide a size indicator block that may be locked on a hanger.

It is another object of the invention to provide a size indicator block that may be locked on a hanger and that requires a specific type of tool to be removed.

It is another object of the invention to provide a size indicator block that has large surface areas to receive printing or other indicia.

It is another object of the invention to provide a small indicator block that can be easily and quickly applied both manually and automatically on the web of the support.

It is another object of the invention to provide a small indicator block that can be produced by a simple molding of plastic material.

Briefly, the invention provides a combination of a hanger having a web with at least one internally disposed tab for movement in the plane of the web between a first position and a second position and a size indicator that is mounted on the web. The size indicator has a pair of walls disposed on opposite sides of the web and means extending from at least one of the walls for locking engagement with the tab in the first position.

While the size indicator is specifically intended for use on a hanger, the indicator may be mounted on any support having a web as described above and may be used to indicate information other than a size of an article on the support.

In one embodiment, an indicator block is provided that has a pair of spaced apart walls defining an opening therebetween, a cover connecting the

walls at one end thereof and at least one bridge connected to and extending between the walls in spaced relation to the cover. In this embodiment, the walls are typically disposed in parallel relation to each other and in perpendicular relation to the cover. Also, each of the walls and the cover has a flat surface for receiving printing, for example, in Arial font. In this respect, the walls and cover of the indicator block present large flat surface areas for the printing of indicia, such as, the size of a garment. By way of example, each wall has flat surface with a length of 18.2 millimeters and a width of 10.5 millimeters while the cover has a flat surface a length of 18.2 millimeters and a width of 8.6 millimeters.

The means on the indicator block for locking engagement with the tab on the web of the support is in the form of a bridge that extends between the two walls. In one embodiment, the indicator block has a pair of flanges, each of which is integral with a wall and which is disposed in facing relation to the other flange. The bridge extends either between these flanges or between the walls behind the flanges. In either case, the bridge adds to the stiffness of the indicator block. Stiffening ribs may also be employed within the block to further stiffen the block.

The web on which the indicator block is mounted includes a space or opening into which the tab projects. This space is also open so that the bridge on the indicator block may pass into the space while the sides of the block move over the outside surfaces of the web. The tab is of a resilient nature to be pivoted from the first position out of the path of the bridge as the bridge passes by to the second position and to snap back to the first position after passage of the bridge. In this respect, the tab is shaped with a shoulder that abuts the bridge in the

second position to lock the indicator block on the web and to prevent the indicator block from being removed from the web.

In one embodiment, the walls of the indicator block and the tab on the web are sized relative to each other such that the walls cover over the tab completely. Thus, a permanent locking of the indicator on the web takes place.

In another embodiment, the tab projects beyond the walls whereby insertion of a pointed tool perpendicularly into the space in the web and against the tab causes movement of the tab from said first position to the second position for unlocking of the indicator block. Once the tab has been moved into the second or unlocking position, the indicator block may be removed from the web with the bridge passing out of the space in the web.

In still another embodiment, the indicator block is made with an internally disposed transverse stiffening that rib has an aperture to receive the locking tab of the web therein. In this embodiment, the bridge is integral with the rib and defines a side of the aperture.

In still another embodiment, the indicator block may have portions thereof made of different materials from the other portions. Also, the web may have a pair of tabs disposed in opposed relation within the space with the bridge of the indicator block received between the tabs.

The support may also have one or more pair of ribs mounted on the web for guiding of the block therebetween and a pair of keys, each of which extends from a respective rib and which has a wall of the indicator block slidably mounted

thereon. Instead of using keys at the ends of the ribs, a pair of strips may extend from a rib along the web to slidably mount a wall of the indicator block thereon.

Once the small indicator block has been assembled on the support, the indicator block is firmly fixed in place and requires a specific procedure for which an operator needs to use a specific tool to remove the indicator block and one which would be difficult for a small child to determine.

The small indicator block may be fixedly assembled on the support so that the block can be removed only with an operation that jeopardizes the integrity of the block and thus does not allow reuse.

The small indicator block is made of a substantially parallelepiped box-shaped body with a longitudinal opening on one side surface which allows fitting onto a thin web formed on the support and with a bridge extending between the walls of the block to pass through the space in the web into contact with the counteracting resilient tab formed on the thin web in order to carry out the required attachment.

When a removal operation of the small block without jeopardizing its integrity is required, this operation can be carried out due to the fact that when the indicator block is assembled on the support body, a portion of the resilient tab projects from the block thus allowing an operator to act on this tab portion in order to carry out the required release.

During assembly, the small indicator block is at first brought close to and then fitted onto the thin web by hand or by mechanical means so that the bridge of the block enters into the space containing the tab. The bridge then slightly

deforms the tab by pushing the tab laterally to one side. After the bridge passes by, the tab being slightly resilient, springs back into the initial position in order to form an abutment step. This step blocks the bridge from moving back out of the space in the web. The required attachment of the small indicator block on the fixed body is therefore obtained.

In order to remove the small indicator block from the fixed web, the operator needs to operate with a suitably shaped tool, such as a pin or other small-sized and small thickness sharpened tool, on the small portion of the tab that projects from the small block. By exerting pressure on the tab, the tab is slightly deformed as much as required in order to release the bridge from the tab and therefore allow removal of the block from the fixed web.

The features of the small indicator block and of the web on the fixed support will become clear from the following description taken in conjunction with the accompanying drawings wherein:

Fig. 1 illustrates a detailed perspective view of a coat hanger equipped with a small indicator block of the type that is assembled in a removable manner in accordance with the invention;

Fig. 2 illustrates an enlarged view of the indicator block and locking tab during a removal operation employing a pointed tool;

Fig. 3 illustrates an exploded perspective view of the indicator block and hanger of Fig. 1;

Fig. 4 illustrates an end view of the indicator block of Fig. 1;

Fig. 5 illustrates a top view of the indicator block of Fig. 1;

Fig. 6 illustrates a partial broken away side view of the indicator block of Fig. 1;

Fig. 7 illustrates a perspective view of the indicator block of Fig. 1;

Fig. 8 illustrates a further perspective view of the indicator block of Fig. 1;

Fig. 9 illustrates an end view of modified indicator block in accordance with the invention;

Fig. 10 illustrates a top view of the indicator block of Fig. 9;

Fig. 11 illustrates a partial broken away side view of the indicator block of Fig. 9;

Fig. 12 illustrates a perspective view of the indicator block of Fig. 9;

Fig. 13 illustrates a further perspective view of the indicator block of Fig. 9;

Figs. 14 to 17 illustrate, in sequence, the attachment steps for mounting the indicator block of Fig. 1 on the web of Fig. 1;

Figs. 18 to 21 illustrate, in sequence, the attachment steps for mounting the indicator block of Fig. 1 on a web having a pair of locking tabs in accordance with the invention;

Fig. 22 illustrates an exploded view of the hanger and indicator block of Fig. 1;

Fig. 23 illustrates a partial perspective view of the hanger of Fig. 1;

Fig. 24 illustrates a cross-sectional view of the web of the hanger of Fig. 22 relative to the cross-section of the indicator block of Fig. 1;

Fig. 25 illustrates a cross-sectional view of the web of the hanger of Fig. 22 with the indicator block of Fig. 1 mounted in place;

Fig. 26 illustrates an exploded view of a modified hanger and the indicator block of Fig. 1;

Fig. 27 illustrates a partial perspective view of the hanger of Fig. 26;

Fig. 28 illustrates a cross-sectional view of the web of the hanger of Fig. 26 relative to the cross-section of the indicator block of Fig. 26;

Fig. 29 illustrates a cross-sectional view of the web of the hanger of Fig. 26 with the indicator block of Fig. 26 mounted in place;

Fig. 30 illustrates an exploded view of a further modified hanger and the indicator block of Fig. 1;

Fig. 31 illustrates a partial perspective view of the hanger of Fig. 30;

Fig. 32 illustrates a cross-sectional view of the web of the hanger of Fig. 30 relative to the cross-section of the indicator block of Fig. 30;

Fig. 33 illustrates a cross-sectional view of the web of the hanger of Fig. 30 with the indicator block of Fig. 30 mounted in place;

Fig. 34 illustrates an exploded view of a further modified hanger and the indicator block of Fig. 1;

Fig. 35 illustrates a partial perspective view of the hanger of Fig. 34;

Fig. 36 illustrates a cross-sectional view of the web of the hanger of Fig. 34 relative to the cross-section of the indicator block of Fig. 34;

Fig. 37 illustrates a cross-sectional view of the web of the hanger of Fig. 34 with the indicator block of Fig. 34 mounted in place;

Fig. 38 illustrates an exploded view of a further modified hanger and the indicator block of Fig. 1;

Fig. 39 illustrates a partial perspective view of the hanger of Fig. 38;

Fig. 40 illustrates a cross-sectional view of the web of the hanger of Fig. 38 relative to the cross-section of the indicator block of Fig. 38;

Fig. 41 illustrates a cross-sectional view of the web of the hanger of Fig. 38 with the indicator block of Fig. 38 mounted in place;

Fig. 42 illustrates a partial perspective view of a hanger employing two locking tabs in accordance with the invention;

Fig. 43 illustrates an enlarged view of Fig. 42;

Fig. 44 illustrates a perspective view of a coat hanger equipped with a small indicator block of the invention;

Fig. 45 illustrates a part perspective view of the indicator block of Fig. 44 mounted in place;

Fig. 46 illustrates a perspective view of the support of Fig. 44 with the indicator block removed;

Fig. 47 illustrates an exploded view of the web and indicator block of Fig. 45;

Fig. 48 illustrates a perspective view of a modified indicator block with an apertured transverse rib recessed within the block to define the bridge in accordance with the invention;

Fig. 49 illustrates a further perspective view of the indicator block of Fig. 48;

Fig. 50 illustrates a still further perspective view of the indicator block of Fig. 48;

Figs. 51 to 53 illustrate, in sequence, the attachment steps for mounting the indicator block of Fig. 48 on the rib of Fig. 46;

Figs. 54 to 56 illustrate, in sequence, the attachment steps for mounting the indicator block of Fig. 48 on a rib with a pair of locking tabs;

Fig. 57 illustrates a perspective view of an indicator block made by co-injection or post-injection of two different components; and

Fig. 58 illustrates a perspective view of a further indicator block made by co-injection or post-injection of two different components;

Referring to Figs. 1 to 3, the small indicator block 1 is mounted on a thin web 2 formed on a support 3 in the form of a plastic coat hanger.

As shown in Fig. 3, the web 2 has a space or opening 6 therein that is open to the outer edge of the web 2 and at least one resilient tab 4 that extends into the space 6 for movement in the plane of the web 2 between a first position and a second position. When the indicator block 1 is mounted on the web 2, an end 5 of the tab 4 extends beyond the plane of the indicator block 1.

As can be seen in Figs. 4 to 8, the small indicator block 1 is made of a hollow body 11 whose shape is a substantially right parallelepiped with a longitudinal slot 12 on one of the sides of its lateral surface that develops for the whole height of the block and whose width "S" corresponds to the thickness of the thin web 2 on the support 3.

The block 1 has a pair of spaced apart walls defining an opening, a cover that connects the walls at one end thereof and at least one bridge 14.1 connected to and extending between the walls in spaced relation to the cover.

The walls are disposed in parallel relation to each other and in perpendicular relation to the cover. In addition, the block 1 has a pair of flanges, each of which is integral with a wall and extends perpendicularly from the wall toward the other flange. As shown, the bridge 14.1 extends between flanges.

The slot 12 ends with two openings 13 whose width "G" corresponds to the distance between the two opposite internal walls of the block in order to form a seat for guiding keys 22,23 (see Fig. 23) on the thin web 2l; the guiding keys are further described below.

The slot 12 is interrupted, preferably in the central position, by the bridge 14 that acts as a means for locking the indicator block 1 to the web 2 of the support 3 as well as a strengthening and stiffening element of the body of the indicator block 1.

Referring to Figs. 9 to 13, wherein like reference characters indicate like parts as above, the bridge 14.2 may be placed inside the body, preferably close to the wall equipped with the slot 12 in order to increase the stiffening of the body. The bridge 14.2 thus extends between the walls and behind flanges of the indicator body 1.

As can be deduced from the sequence of Figs. 14 to 17, when the indicator block 1 is to be mounted in place, the bridge 14 of the block 1 is aligned with a slot 7 in the web 2 that opens into the space 6 (Fig. 14). The indicator block 1 is then slid onto the web 2 with the bridge 14 passing through the slot 7 while moving the tab 4 from an initial position to a retracted position (Fig. 15). Continued movement of the indicator block 1 causes the bridge 14 to pass

beyond a shoulder on the tab 4 thereby allowing the tab to spring back to its initial position (Fig. 16). At this time, the shoulder of the tab 4 prevents the bridge 14 from moving back through the slot 7 thereby locking the indicator block 1 on the web 3. In addition, the cover of the indicator block 1 rests on the web 3 and the walls of the indicator block 1 cover over a substantial portion of the space 6 leaving only a small end 5 of the tab 4 exposed (Fig. 17).

The movement of the bridge 14 stops when the bridge 14 moves past the shoulder of the tab 4 and is therefore blocked by the spring back of the tab 4.

Referring to Fig. 2, removal of the block 1 from the web 2 is made possible by inserting a pointed end of a tool "K" into the exposed space 6 against the projecting tab end 5 in order to move the tab laterally from the rest position towards the retracted unlocking position of Fig. 15. At the same time, the tool K wedges between the block 1 and the web 2 to push the block 1 along the web 2. This also causes the bridge of the block 1 to pass through the slot 7 (see Fig. 15) so that the block 1 can be removed from the web 2.

Referring to Figs. 42 and 43, wherein like reference characters indicate like parts as above, the web 2 may have a pair of tabs 4 disposed on opposite sides of the space 6 and the slot leading to the space 6. Mounting of a block 1 on such a web 2 is carried out as indicated by Figs. 18-21. In this respect, as the bridge of the block 1 moves through the slot, both tabs 4 are moved laterally (Fig. 19) out of the way and are then sprung back (Fig. 20) after the bridge passes by in order to lock the block 1 on the web 2. In order to remove the

block, the tool K is used as above to deflect both tabs laterally thereby unlocking the bridge and moving the block 1 along the web 2.

Referring to Figs. 22 to 25, in a first embodiment, the web 2 is provided with two opposite pairs of ribs 20 and 21 that are of a width "L" greater than the thickness "S" of the thin web 2 and at least equal or greater than the width of the block 1. These ribs 20,21 form upper and lower support and guiding bases for the block (see Figures 24 and 25).

As shown in Figs. 22 to 25, small keys 22, 23 project from the two pairs of ribs 20, 21 and the web 2 and are sized to pass into the openings 13 of the block 1 in order to slidably receive the block 1. These keys 22,23 engage the front entry guide (key 22) and the rear anti-rotation guide (key 23) of the block 1 during mounting of the block 1 onto the thin web 2.

Figs. 26 to 29, wherein like reference characters indicate like parts as above, represent a second embodiment of a support seat for the indicator block 1 on the web 2, wherein there are only the front ribs 20 and the front keys 22.

Figs. 30 to 33, wherein like reference characters indicate like parts as above, represent a third embodiment of the support seat for the indicator block 1, wherein there are front ribs 20, front keys 22 and some bosses 24 with anti-rotation functions on the web 2 that slidably receive the block 1.

Figs. 34 to 37, wherein like reference characters indicate like parts as above, represent a fourth embodiment of the support seat for the indicator block 1, wherein the two pairs of guiding keys are replaced by two opposite strips 25 that close the two ends of the block 1 and fit within the ends of the block 1 (see

Fig. 37). Each strip 25 extends from a respective rib 20 along the web 2 and has a respective wall of the block 1 slidably mounted thereon.

Figs. 38 to 41, wherein like reference characters indicate like parts as above, represent a fifth embodiment of the support seat of the small indicator block 1 wherein rear ribs 21 extend perpendicularly from the ends of the strips 25 to the web 2.

Fig. 44 represents a small indicator block 1 integrally assembled on the web of a support 3 in the form of a hanger. When assembled the block 1 may be removed only with a difficult action compromising its integrity and therefore does not allow its reuse.

Referring to Figs. 45 to 47, wherein like reference characters indicate like parts as above, in order to make removal of the block 1 from the web 2 difficult to ill-disposed people, the web 2 is provided with two walls 30 each of a size equal to the outside contour of the block 1 so that when the block 1 is mounted in place between the walls 30, the block 1 is entirely contained between two opposite walls 30.

Referring to Figs. 48 to 50, wherein like reference characters indicate like parts as above, in order to avoid a possible breaking, the small indicator block 1 is made of a hollow body 11 with a longitudinal slot 12 that extends the length of the block 1 and a transverse stiffening rib 16 that extends between and transversely of the walls. The stiffening rib 16 has an aperture 15 and a bridge 14.3 that is integral with the rib 16 and defines a side of the aperture 15. Additional ribs 17 extend from an upper end 16.1 of the stiffening rib 16 integrally

with the block 1 and in opposite directions to enhance the longitudinal stiffening of the block 1.

Referring to Figs. 51 to 53 and Figs. 54 to 56, the mounting of the block 1 of Fig. 48 on a web 2 is such that the walls of the block completely cover the space 6 in which the tab 4 (Fig. 53) or tabs 4 (Fig. 56) are located so that the tab(s) are recessed within the plane of the walls of the block 1. Thus, the ends 5 of the tab(s) 4 are not exposed.

As can be seen in Figs. 53 and 56, in order to make breaking of the small block 1 even more difficult, the rear portion 16.1 of the stiffening rib 16 is disposed in the slot 7 leading into the space 6 and further increases the resistance to breaking.

Referring to Fig. 57, the body 11 of the small indicator block may be made of a block-like shape 11 with a first coaxial portion 110 of a different material from a second coaxial portion 120. Also, as shown in Fig. 58, the block may be made of a block-like shape 11 with a first main portion 110 of a different material from a second portion 120 that covers a section of the main portion. These bi-component indicator blocks may be made by co-injection or post-injection .

The invention thus provides a block that can be mounted on a hanger or other suitable support in a manner that prevents manual removal by use of a finger or fingernail.

Further, the invention provides a block that can be mounted on a hanger or other suitable support in a permanently locked manner or in a locked manner that allows removal with a tool with a pointed end.

The invention further provides a sizer block for a hanger that has enlarged surfaces to provide for an increased area for printing of information thereon.